

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-54. (Cancelled).

55. (New) An implantable medical device for the controlled release of drug molecules comprising:

- a substrate;
- at least two reservoirs in the substrate,
- release system disposed in the reservoirs, the release system comprising drug molecules for release; and
- discrete metal reservoir caps positioned over or within openings in the reservoirs, wherein release of the drug molecules from the device is activated by disintegration of the reservoir cap and the disintegration of the reservoir cap is actively controlled.

56. (New) The device of claim 55, wherein the substrate is comprised of two or more substrate portions bonded together.

57. (New) The device of claim 56, wherein the substrate comprises an upper substrate portion adjacent the reservoir cap and a lower substrate portion distal the reservoir cap.

58. (New) The device of claim 57, wherein a reservoir section in the upper substrate portion is in communication with a reservoir section in the lower substrate portion, the two reservoir sections forming a single reservoir.

59. (New) The device of claim 57, wherein the reservoir section in the lower substrate portion has a volume that is greater than the volume of the reservoir section in the upper substrate portion.

60. (New) The device of claim 57, wherein the lower substrate portion is provided with an internal reservoir cap interposed between a reservoir section of the upper substrate portion and a reservoir section of the lower substrate portion, wherein release of the molecules from the reservoir section in the lower substrate portion is controlled by diffusion through or disintegration of the internal reservoir cap.

61. (New) The device of claim 60, wherein the internal reservoir cap is disintegratable, so that the two reservoir sections become a single reservoir.

62. (New) The device of claim 60, wherein the reservoir section of the lower substrate portion contains molecules different in quantity, type, or both quantity and type, from the molecules contained in the reservoir section of the upper substrate portion.

63. (New) The device of claim 55, wherein disintegration of the reservoir cap is activated by application of electrical energy through the reservoir cap.

64. (New) The device of claim 63, wherein at least one reservoir cap is an anode, and the device further comprises a cathode, a power source, and electrical circuitry means for application of an electric potential between the cathode and anode effective to disintegrate the reservoir cap.

65. (New) The device of claim 55, wherein the release system further comprises at least one matrix material, excipient, or combination thereof.

66. (New) The device of claim 55, wherein the release system further comprises at least one biodegradable or bioerodible polymeric material.

67. (New) The device of claim 55, wherein the drug molecules comprise anesthetics, vaccines, chemotherapeutic agents, metabolites, immunomodulators, antioxidants, antibiotics, and ion channel regulators, or hormones.

68. (New) The device of claim 55, wherein the disintegration of at least one of the reservoir caps is controlled by a signal from a biosensor or by a preprogrammed microprocessor.

69. (New) A microchip device for the controlled release of drug molecules comprising:
a substrate;
at least two reservoirs in the substrate, wherein each reservoir has at least one opening defined in the substrate;
release system disposed in the reservoirs, the release system comprising drug molecules for release; and
at least two discrete electrically conductive reservoir caps, each reservoir cap closing off the opening defined by a respective reservoir,
wherein release of the drug molecules from the device is activated by disintegration of the reservoir cap by direct application of an electrical potential through the reservoir cap.

70. (New) The device of claim 69, wherein the substrate is comprised of two or more substrate portions bonded together.

71. (New) The device of claim 69, wherein at least one reservoir cap is an anode, and the device further comprises a cathode, a power source, and electrical circuitry means for application of an electric potential between the cathode and anode effective to disintegrate the reservoir cap.

72. (New) The device of claim 69, wherein the release system in at least one of the reservoirs differs in quantity, type, or both quantity and type, from the release system in at least one other of the reservoirs.

73. (New) The device of claim 69, wherein the release system further comprises at least one matrix material, excipient, or combination thereof.
74. (New) The device of claim 69, wherein the release system further comprises at least one biodegradable or bioerodible polymeric material.
75. (New) The device of claim 69, wherein the reservoir caps are formed of a metal film.
76. (New) The device of claim 70, wherein the drug molecules comprise anesthetics, vaccines, chemotherapeutic agents, metabolites, immunomodulators, antioxidants, antibiotics, and ion channel regulators, or hormones.
77. (New) A medical device comprising:
a substrate;
at least two discrete, microfabricated reservoirs provided in spaced positions across at least one surface of the substrate;
discrete reservoir caps covering the at least two reservoirs; and
control circuitry for selectively disintegrating the reservoir caps to open the reservoirs.
78. (New) The device of claim 77, wherein the reservoirs comprise molecules useful in medical diagnostics.
79. (New) The device of claim 78, wherein the molecules comprise a diagnostic reagent.
80. (New) The device of claim 78, wherein the molecules are bioactive.
81. (New) The device of claim 77, wherein the substrate comprises silicon.
82. (New) The device of claim 77, wherein the substrate comprises two or more layers or portions bonded together.

83. (New) The device of claim 82, wherein the substrate comprises layers of silicon, glasses, ceramics, semiconductors, metals, polymers, or a combination thereof.
84. (New) The device of claim 77, further comprising a biosensor.
85. (New) The device of claim 77, wherein the reservoir caps comprise a metal film.
86. (New) The device of claim 77, wherein the reservoir cap comprises an anode and the control circuitry comprises a cathode and a power source for creating an electric potential between the cathode and the anode.
87. (New) The device of claim 77, wherein reservoir opening is controlled by a signal from a biosensor or by a preprogrammed microprocessor.
88. (New) The device of claim 77, wherein the control circuitry comprises a cathode, a microprocessor, a timer, a demultiplexer, and a power source, wherein at least one reservoir cap is an anode, and wherein application of an electric potential between the cathode and anode causes at least one of the reservoir caps to disintegrate.
89. (New) The device of claim 77, which is adapted for implantation into a patient.
90. (New) The device of claim 77, wherein the reservoirs comprise drug molecules.
91. (New) A device for use in medical diagnostics comprising:
a substrate;
at least two discrete reservoirs provided in spaced positions across at least one surface of the substrate;
a diagnostic reagent disposed in the reservoirs;
discrete reservoir caps covering the at least two reservoirs; and
control circuitry for selectively disintegrating the reservoir caps to open the reservoirs.

92. (New) The device of claim 91, wherein the substrate comprises two or more layers or portions bonded together.

93. (New) The device of claim 92, wherein the substrate comprises layers of silicon, glasses, ceramics, semiconductors, metals, polymers, or a combination thereof.

94. (New) The device of claim 91, wherein the reservoir caps comprise a metal film.

95. (New) The device of claim 91, wherein the reservoir cap comprises an anode and the control circuitry comprises a cathode and a power source for creating an electric potential between the cathode and the anode.

96. (New) The device of claim 91, wherein reservoir opening is controlled by a signal from a biosensor or by a preprogrammed microprocessor.

97. (New) A medical device comprising:

a substrate;

at least two discrete reservoirs provided in spaced positions across at least one surface of the substrate;

discrete reservoir caps covering the at least two reservoirs; and

control circuitry for selectively disintegrating the reservoir caps to open the reservoirs,

wherein the reservoir cap disintegration comprises dissolving into solution, or forming soluble ions or oxidation compounds, upon application of an electric potential generated by the control circuitry.

98. (New) The medical device of claim 97, wherein the control circuitry comprises a cathode and a power source, wherein at least one reservoir cap is an anode, and wherein application of an electric potential between the cathode and anode causes at least one of the reservoir caps to disintegrate.

99. (New) The device of claim 97, wherein the reservoirs comprise molecules useful in medical diagnostics.
100. (New) The device of claim 99, wherein the molecules comprise a diagnostic reagent.
101. (New) The device of claim 97, wherein the reservoirs comprise drug molecules.
102. (New) The device of claim 97, wherein the reservoirs are microfabricated, at least one of the reservoirs contains drug or diagnostic molecules, and the device is adapted for implantation into a patient.